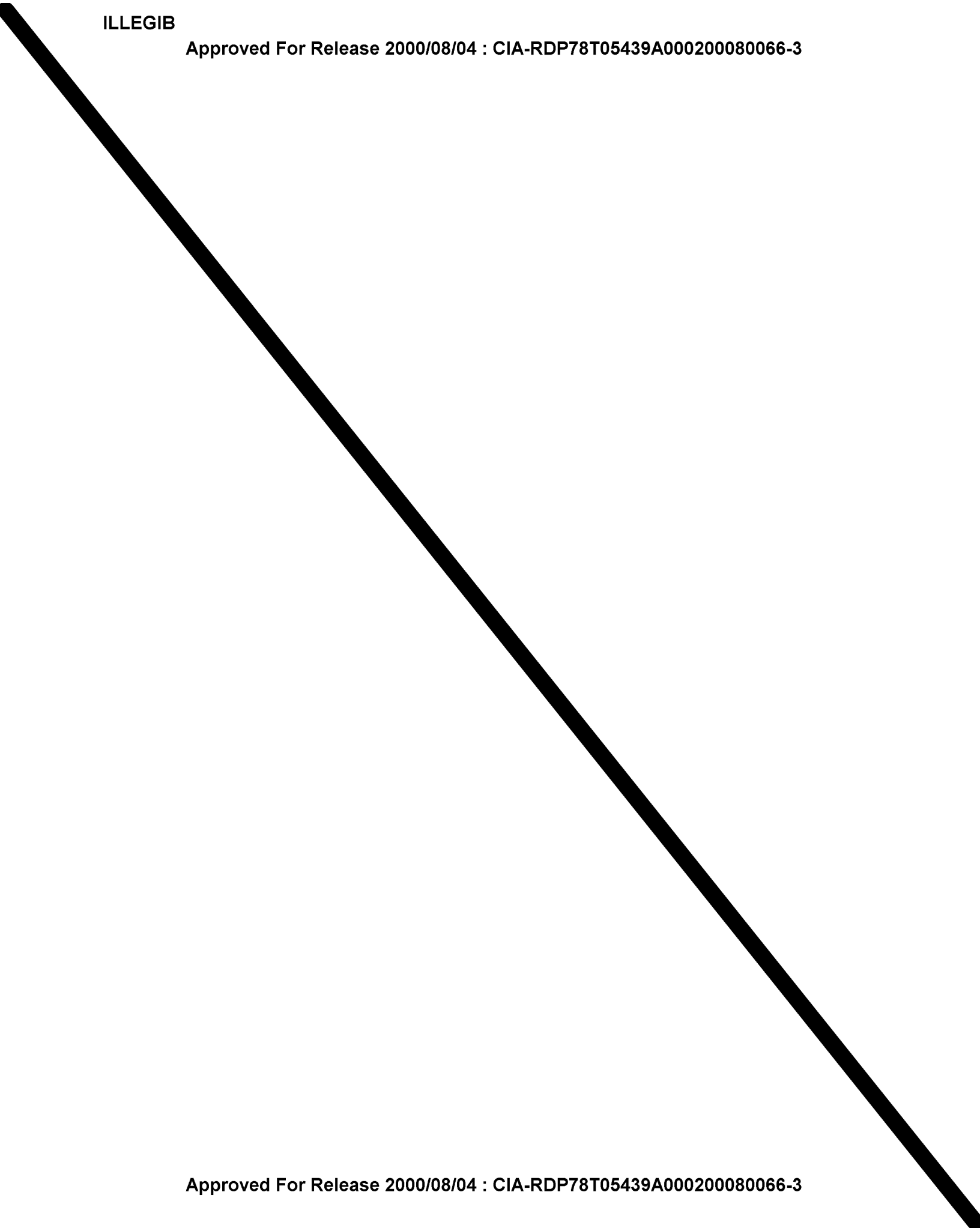

~~TOP SECRET CHESS RUFF~~

PHOTOGRAPHIC INTERPRETATION REPORT

NEW-TYPE SAM SITES

IN THE

USSR

NPIC/R-123/62

August 1962

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

~~TOP SECRET CHESS RUFF~~

TOP SECRET CHESS RUFF

USSR

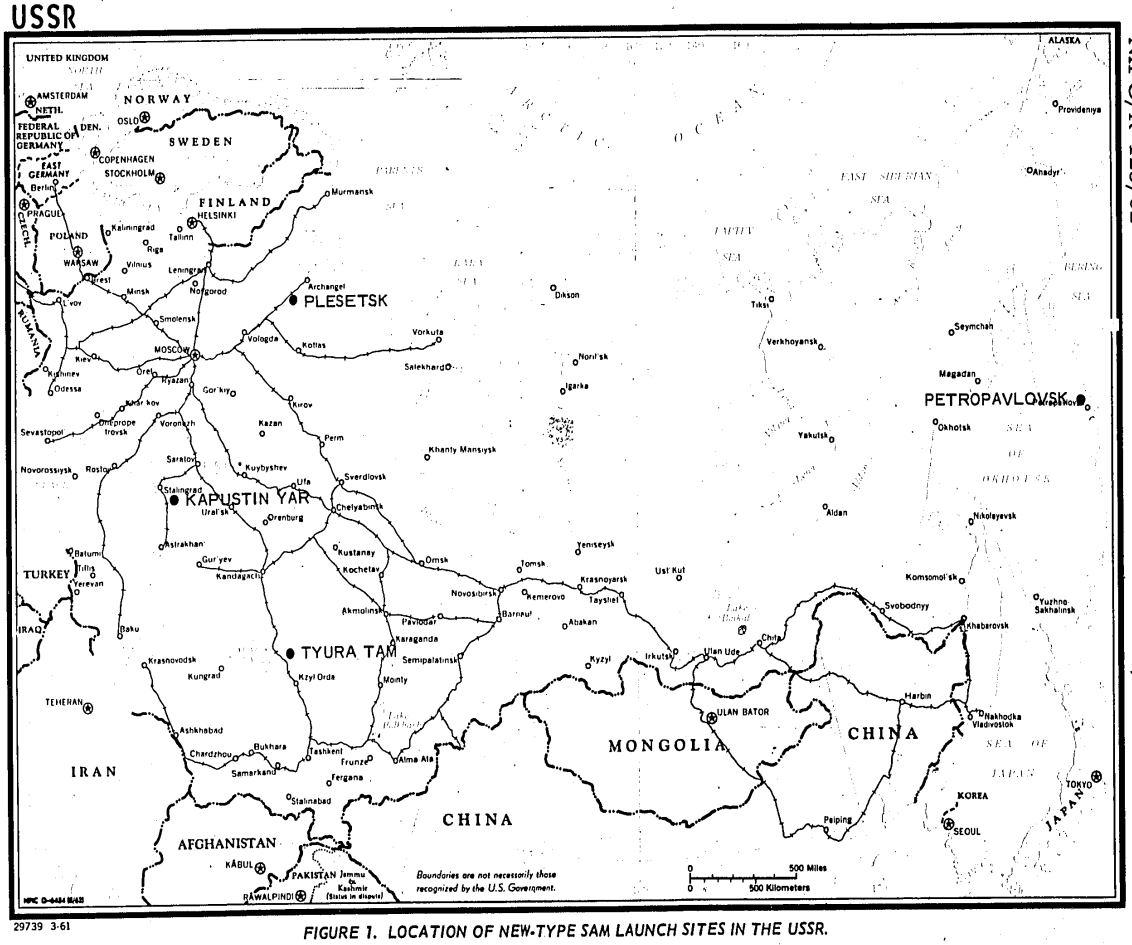

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FIGURE 1. LOCATION OF NEW-TYPE SAM LAUNCH SITES IN THE USSR.

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INTRODUCTION

This report presents information derived from KEYHOLE photography on SAM launch sites of a new but as yet unidentified type which are colocated with SA-2 SAM sites in four areas of the USSR. It was originally thought that these new-type SAM sites were similar to the possible antimissile-missile (AMM) sites in the Leningrad area and in the Sary Shagan Antimissile Test Center (SSATC). Detailed analysis, however, showed that the possible AMM sites, while having features common to themselves, are dissimilar in some respects from the new-type SAM sites. It was therefore decided to treat the new-type SAM sites and the possible AMM sites in separate publications.

25X1D

As of [redacted], 11 of the new-type SAM sites had been observed in the USSR, at the following locations: one in the Kapustin Yar/Vladimirovka Missile Test Center (KYMTC), 7 (including one possible) in the Tyura Tam Missile Test Center (TTMTC), 2 in the Plesetsk area, and one in the Petropavlovsk area (Figure 1). A chronology of the photo evidence on the new-type SAM sites and on possibly related sites and activity is given in Table 1. Location data on the 11 new-type sites are given in Table 2. These new-type SAM sites are roughly circular and range between 550 and 650 feet in diameter of the perimeter road. Although not always visible, six launch positions are probably present at each site. These positions are placed inside of and adjoining the circular service road.

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Table 1. Chronology of Photo Evidence

Date and Mission	Item
[redacted]	Prototype SA-3 SAM sites in KYMTC SAM Launch Complex first identified. First evidence of new-type SAM sites colocated with SA-2 sites in TTMTC. First evidence of new site in SA-2 Launch Area of KYMTC SAM Launch Complex. SA-3 Launch Area expanded to accommodate two new sites. Activity on the circular SA-2 site (Site B) in the R&D Launch Area of the KYMTC SAM Launch Complex. First evidence of a new-type SAM site in Plesetsk area (near SA-2 site B-36) Second new-type SAM site observed in Plesetsk area (near SA-2 site B-06) First observation of new-type SAM site in Petropavlovsk area. First observation of new-type SAM site in KYMTC.

Table 2. Location Data for New-Type SAM Sites

New-Type SAM Site	Coordinates	Dist. (nm) & Direction From Reference Point	Dist. (ft) & Direction From SA-2 Site
In the KYMTC			
Near Vladimirovka SA-2 Site A-04	48-24-10N 46-15-30E	7 NNE of Vladimirovka Afld	700 SE
In the TTMTC			
Near SA-2 Site B-03	46-09-20N 63-37-30E	18.5 NNE of SAM Supp Fac	1,000 SSE
Near SA-2 Site B-09	45-59-00N 63-52-20E	22.5 NE of SAM Supp Fac	2,500 SW
Near SA-2 Site B-13			
Revetted site	45-48-40N 63-45-00E	13.5 SE of SAM Supp Fac	2,250 ESE
Unrevetted site	45-48-30N 63-45-00E	14 SE of SAM Supp Fac	2,300 SE
Near SA-2 Site B-21	45-43-15N 63-19-40E	11 SSW of SAM Supp Fac	700 N
Near SA-2 Site B-26	45-52-10N 62-58-40E	18 W of SAM Supp Fac	700 SE
Near SA-2 Site B-32	46-05-00N 63-15-20E	15 NW of SAM Supp Fac	1,000 W
In the Plesetsk Area			
Near SA-2 Site B-36	63-14-00N 40-34-00E	17.5 NNW of Comp Supp Fac	950 NNW
Near SA-2 Site B-06	63-07-10N 41-06-45E	18 NE of Comp Supp Fac	2,300 SSW
In the Petropavlovsk Area			
Near SA-2 Site B-28	53-02-40N 158-18-00E	13 W of Petropavlovsk	900 WSW

CONCLUSIONS

In an attempt to determine the function of these new-type SAM sites, all the known Soviet SAM systems were comprehensively studied. This study included, as a necessary beginning, the R & D, SA-1, SA-2, and SA-3 launch areas in the KYMTC SAM Launch Complex. The conclusion was reached that these new-type SAM sites probably perform a supplemental or modifying function with respect to the SA-2 sites and that they are probably not a part or a modification of the SA-3 system. Supporting evidence for this hypothesis follows:

All the new-type sites are colocated with SA-2 sites.

The position of the new-type site in relation to the SA-2 site -- the new-type site is not always forward of or alongside the SA-2 site -- and the location of both in the defense pattern of the complex being protected are not consistent with known SA-3 deployment patterns.

Although not circular, the two new sites in the SA-2 Launch Area of the KYMTC SAM Launch Complex are otherwise similar to the new-type SAM sites -- in size, location of launch positions with respect to the service road, and size and type of launch positions.

The launch training sites in the SA-2 Launch Area appeared in [redacted] 25X1D

25X1D [redacted] to be inactive, indicating that the two new sites in the eastern part of this area are probably for a new system and not merely hardened training sites.

The existence of the Kordon SAM Training Center and the addition of two SA-3 sites west of the KYMTC SAM Launch Complex support the possibility that training in this complex has been reduced, thus leaving many of the launch areas and the instrumented range to be used for development and testing of new or modified SAM systems.

Identification of two new probable instrumentation sites forward of the KYMTC instrumented SAM range supports the hypothesis that an extended-range or otherwise modified SAM system is being developed.

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NEW-TYPE SAM SITE AND OTHER SAM FACILITIES IN THE KYMTC

25X1D Although as of [redacted] only one new-type SAM launch site had been identified in the KYMTC, several interesting and probably related preceding developments have been noted in the various areas of the SAM Launch Complex, which has provided the R & D, testing, and training for all Soviet SAM systems to date (Figure 2).

New-Type SAM Site

25X1D This site, first identified on [redacted] photography, is located at 48-24-10N 46-15-30E, 7 nautical miles north-northeast of Vladimirovka Airfield and 700 feet southeast of Vladimirovka SA-2 SAM Site A-04. The new-type SAM site is circular and has four and possibly six launch positions, located inside of and adjoining the circular service road (Figure 3).

SAM Launch Complex

Available photography of the SAM Launch Complex was studied in an effort to find a logical line of development there that preceded the deployment of the new-type SAM launch sites. The following is a summary of the 25X1D major changes, as of [redacted] made since TALENT photography of [redacted] 25X1D 25X1D [redacted] A large section, containing an SA-3 site and two large vehicle or equipment revetments, has been added to the western part of the R & D Launch Area. Two sites have been added to the eastern part of the SA-2 Launch Area (formerly called the Troop Training Launch Area 1/). The SA-3 Launch Area (formerly called the New-Type SAM Launch Area 1/) has been expanded both westward and eastward. Two new sites have been constructed in the eastern part. These developments are illustrated in Figure 3 and described below.

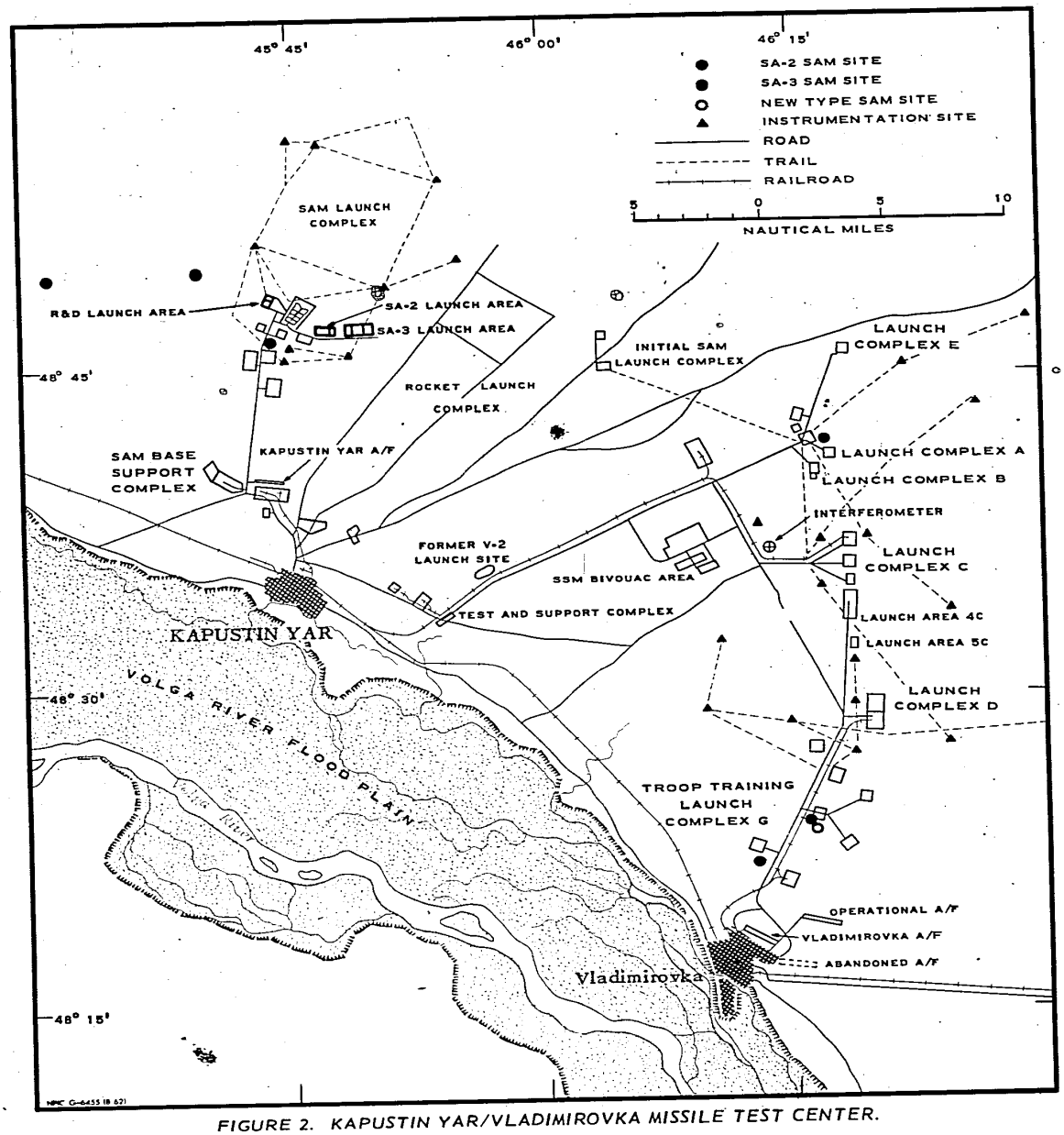

FIGURE 2. KAPUSTIN YAR/VLADIMIROVKA MISSILE TEST CENTER.

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R & D Launch Area

The new section added to the west covers an area 1,500 by 500 feet overall. The new SA-3 site (which has been referred to also as a "pinwheel" site) has been designated Site F.* This site is semicircular, measures approximately 400 by 275 feet, and has four launch positions. It is very similar to Site B in the SA-3 Launch Area. Site F was first identified on 25X1D [redacted] photography and appears later on the [redacted] 25X1D coverages. In [redacted] it appeared complete but inactive. 25X1D

The two new revetments, in the southwest part of the area, are U-shaped, and may accommodate vehicles or other equipment. Site B was 25X1D active in [redacted] several vehicles and possible equipment are visible on some of the launch pads.

SA-2 Launch Area

The three launch training sites in the eastern part of the SA-2 Launch Area are no longer apparent. In their place are two new sites (designated Sites C and D) that are different in configuration from the two SA-2 sites -- formerly called Practice (Live) Firing Sites 1/ -- to their west but similar to the deployed new-type SAM sites. Although these two new sites have only four launch positions and are semicircular and not circular, the launch positions are along the inside of and contiguous to the perimeter service road. These sites are also similar to the new-type SAM sites in overall diameters of and spacing between the launch positions and in overall diameters of the perimeter roads.

25X1D Site C appeared completed but probably inactive on the [redacted] photography. It is approximately 625 by 360 feet and has four unrevetted launch positions. Near its radial center is a guidance area 110 by 75 feet. Site D is under construction, but, judging by the pattern and measurements of the construction scars, it will be similar in configuration to Site C.

*For this and the other new sites in the SAM Launch Complex, letter designators follow in order after those used in CIA/PIC/JR-1008/61. 1/

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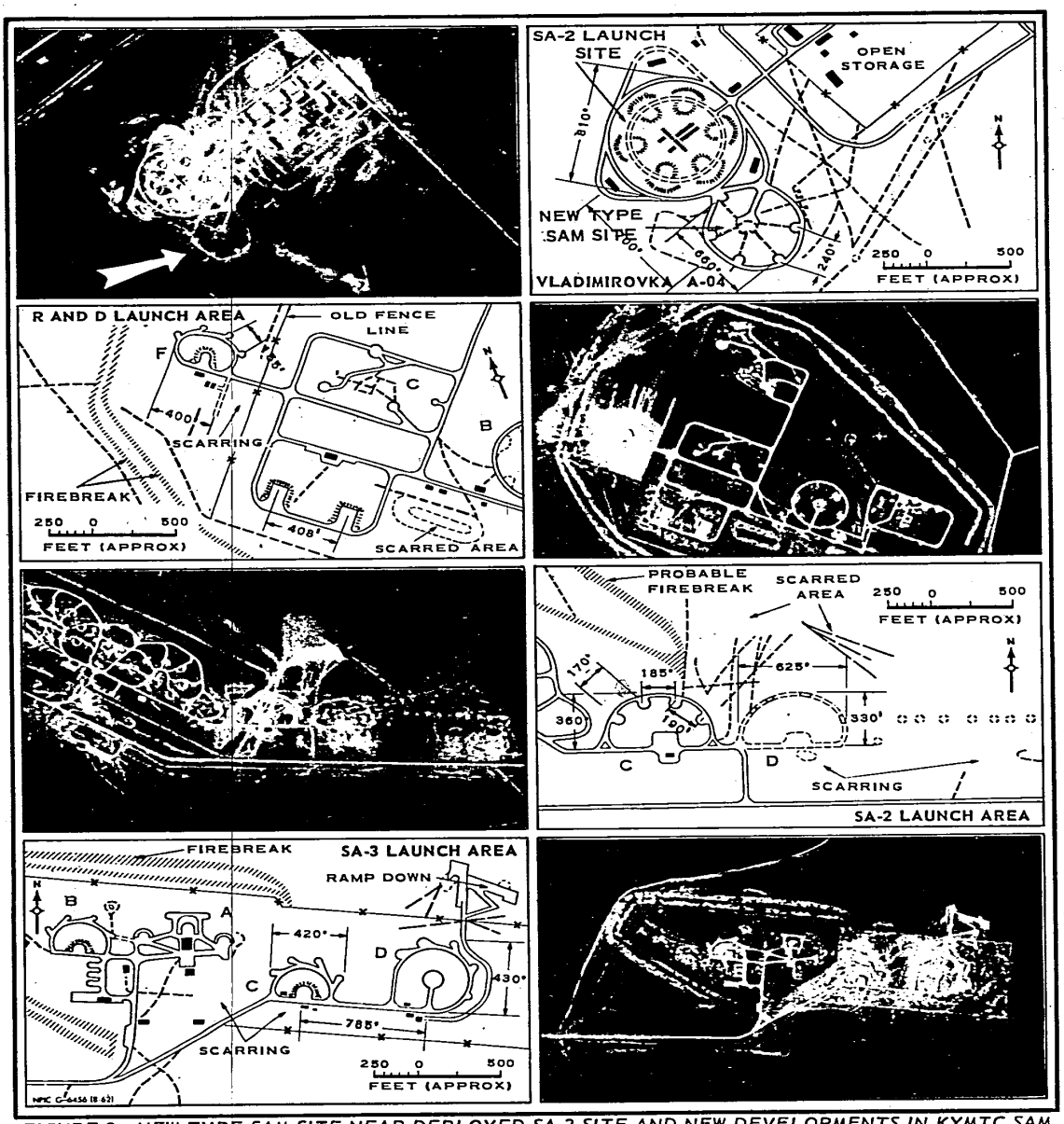

FIGURE 3. NEW-TYPE SAM SITE NEAR DEPLOYED SA-2 SITE AND NEW DEVELOPMENTS IN KYMTC SAM LAUNCH COMPLEX [redacted]

25X1D

SA-3 Launch Area

Expansion of this area has provided a section 1,500 by 1,000 feet on the east and one 700 by 500 feet on the west. The two new sites (designated Sites C and D) are in the new eastern portion and are essentially similar to Site B. Site B is semicircular, measures 400 by 250 feet, and has four launch positions approximately 50-55 feet in diameter and approximately 175 feet apart. The launch positions are outside the semicircular service road and are connected to it by short spur roads. A guidance area 80 by 80 feet is at the approximate radial center of the site.

Site C was complete or in a late stage of construction in [redacted] 25X1D but appeared inactive. It is semicircular and has four circular launch positions connected to a semicircular perimeter road by short spur roads. The site measures 420 by 240 feet. The positions are approximately 50-55 feet in diameter. Near the radial center of the site is a guidance area 80 by 80 feet.

Site D, roughly circular, has four launch positions in a semicircular arrangement, located on the outside of the perimeter service road and connected to it by short spur roads. The site is approximately 430 feet in diameter. The launch positions measure 50-55 feet in diameter. A central guidance area is 80 feet in diameter.

NEW-TYPE SAM SITES IN THE TTMTC

Seven new-type SAM launch sites, all near deployed SA-2 SAM launch sites, have been identified in the TTMTC (Figure 4). (One of these is a possible site, and one is an unrevetted site that may later be abandoned, since a revetted new-type site is next to it.) These seven new-type SAM sites vary slightly in size and shape. However, they are generally circular, and, where the photography permits discerning launch positions, six positions are observed, evenly spaced along the inside of and contiguous to

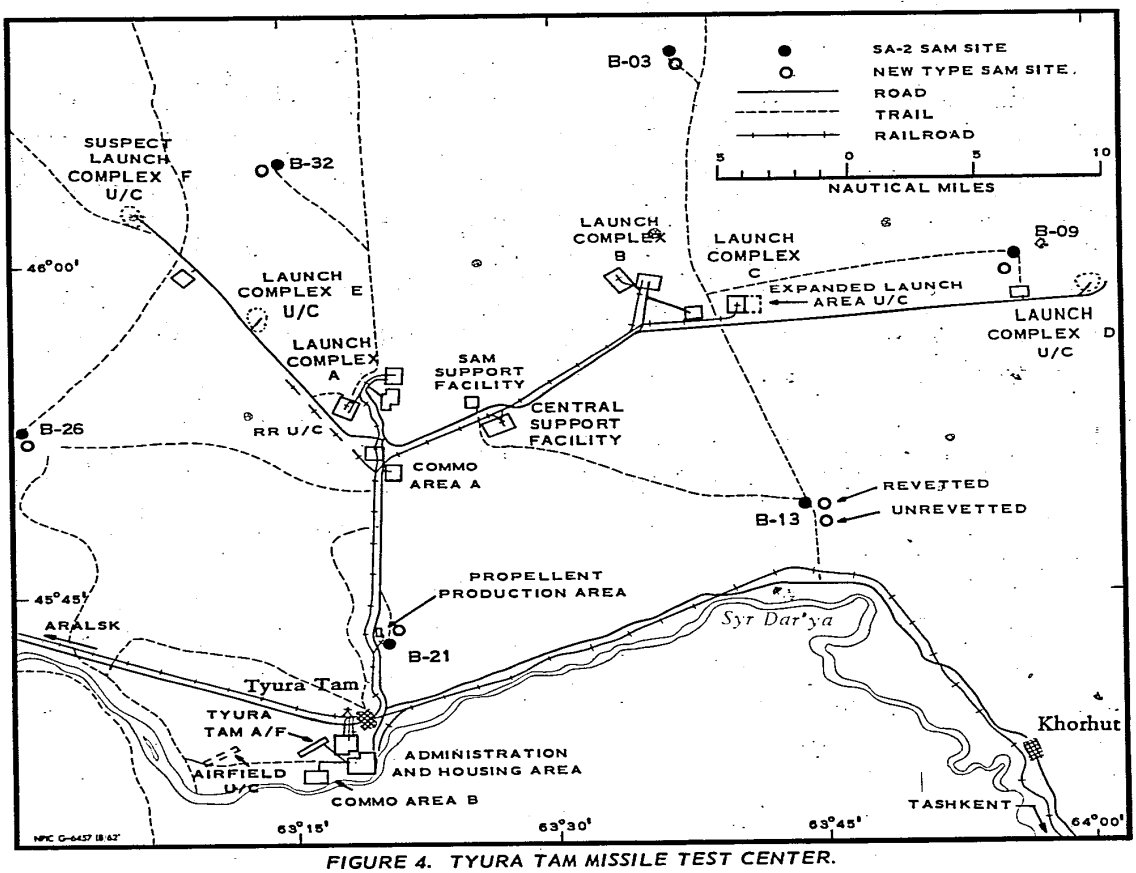

FIGURE 4. TYURA TAM MISSILE TEST CENTER.

the circular service road. Visible near some of the sites is a long linear scar, the significance of which has not been determined.

Although not identified at that time, six new-type SAM sites (including one possible) are visible on the [redacted] photography of the TTMTC. The seventh new-type site first appeared on [redacted] photography. No evidence of any of these sites is discernible on TALENT photography of [redacted] Figures 5 and 6 contain drawings and photographs of the sites.

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Site Near SA-2 Site B-03

This new-type SAM site is approximately 1,000 feet south of its associated SA-2 site. It is roughly circular and has six probable launch positions. Details are not discernible on the [redacted] photography, which provided the first coverage. Better photography of [redacted] 25X1D and [redacted] allowed measuring the site and its revetments. About 1,000 feet west of the site is a long linear scar oriented north-northwest/south-southeast. Several probable support buildings are just southwest of the SA-2 site.

Site Near SA-2 Site B-09

This site, about 2,500 feet southwest of SA-2 site B-09, is roughly circular and has six launch positions of varying size and shape arranged around a central guidance area. The site was in an early stage of construction in [redacted] On the [redacted] photography, the overall pattern and the launch positions are evident.

Sites Near SA-2 Site B-13

Two new-type SAM sites are located near SA-2 site B-13, one revetted and one unrevetted. The revetted site is 2,250 feet and the unrevetted site 2,300 feet from the SA-2 site. The unrevetted site and the SA-2 site first appear on the [redacted] photography. The revetted site, no evidence of which was seen on that coverage, is evident on the [redacted] photography, but its stage of construction at that time cannot be determined. The unrevetted site is circular and has six launch positions connected to a central guidance area by possible cable lines. The revetted site has six oval launch revetments about the same size as SA-2 site launch revetments.

If the images of the two new-type sites are superimposed, the unrevetted site fits exactly inside the revetted site. It is possible that the unrevetted site was constructed as a temporary facility, to be abandoned later and replaced by the revetted site.

Between the SA-2 site and the new-type sites is a linear scar about 1,700 feet long. Tracks and possibly associated buildings are visible at each end of the scar.

Possible Site Near SA-2 Site B-21

25X1D This possible site, 700 feet north of SA-2 site B-21, is faintly visible on the [redacted] photography, the poor quality of which precludes further interpretation.

Site Near SA-2 Site B-26

25X1D The [redacted] photography provides the first and best coverage of this site, which is 700 feet southeast of SA-2 site B-26. The guidance area is discernible, but no launch positions can be identified.

Site Near SA-2 Site B-32

25X1D At this new-type site, four probable launch positions are barely visible on the [redacted] photography, the first and best coverage of the site, which is 1,000 feet west of the SA-2 site. Nearby is a linear scar similar to the others mentioned previously.

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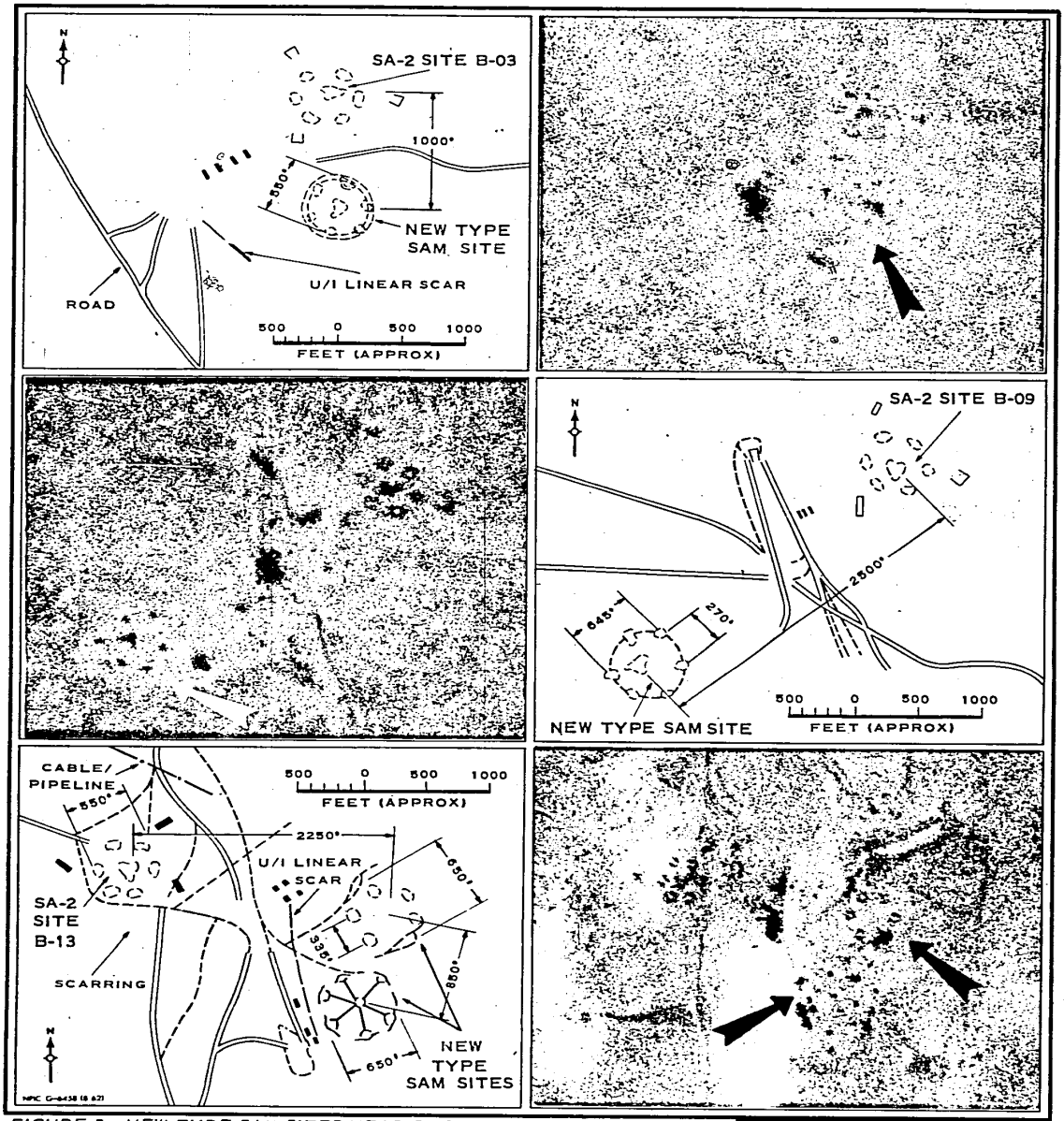

FIGURE 5. NEW-TYPE SAM SITES NEAR SA-2 SITES B-03, B-09, AND B-13.

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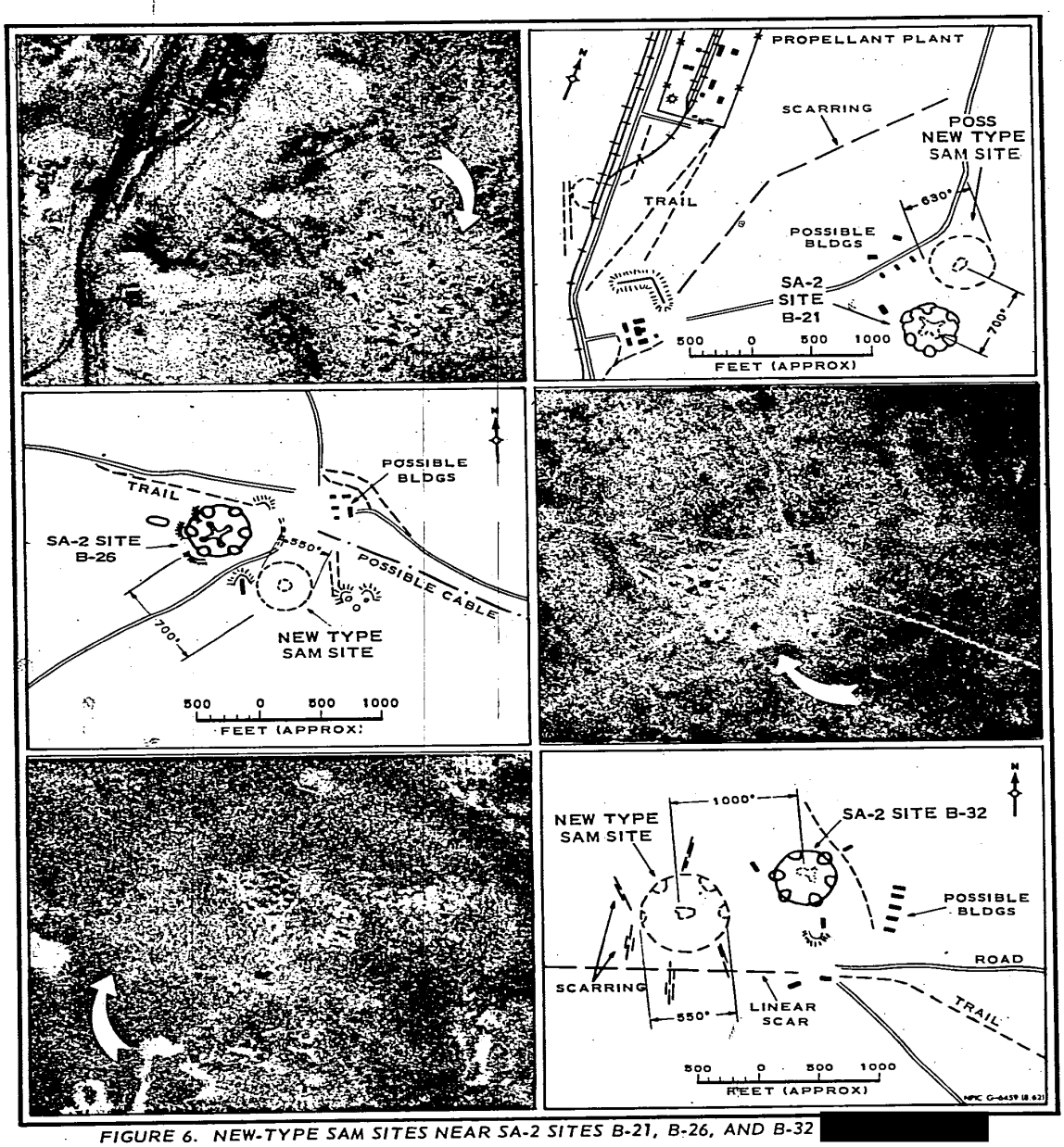

FIGURE 6. NEW-TYPE SAM SITES NEAR SA-2 SITES B-21, B-26, AND B-32 [redacted]

25X1D

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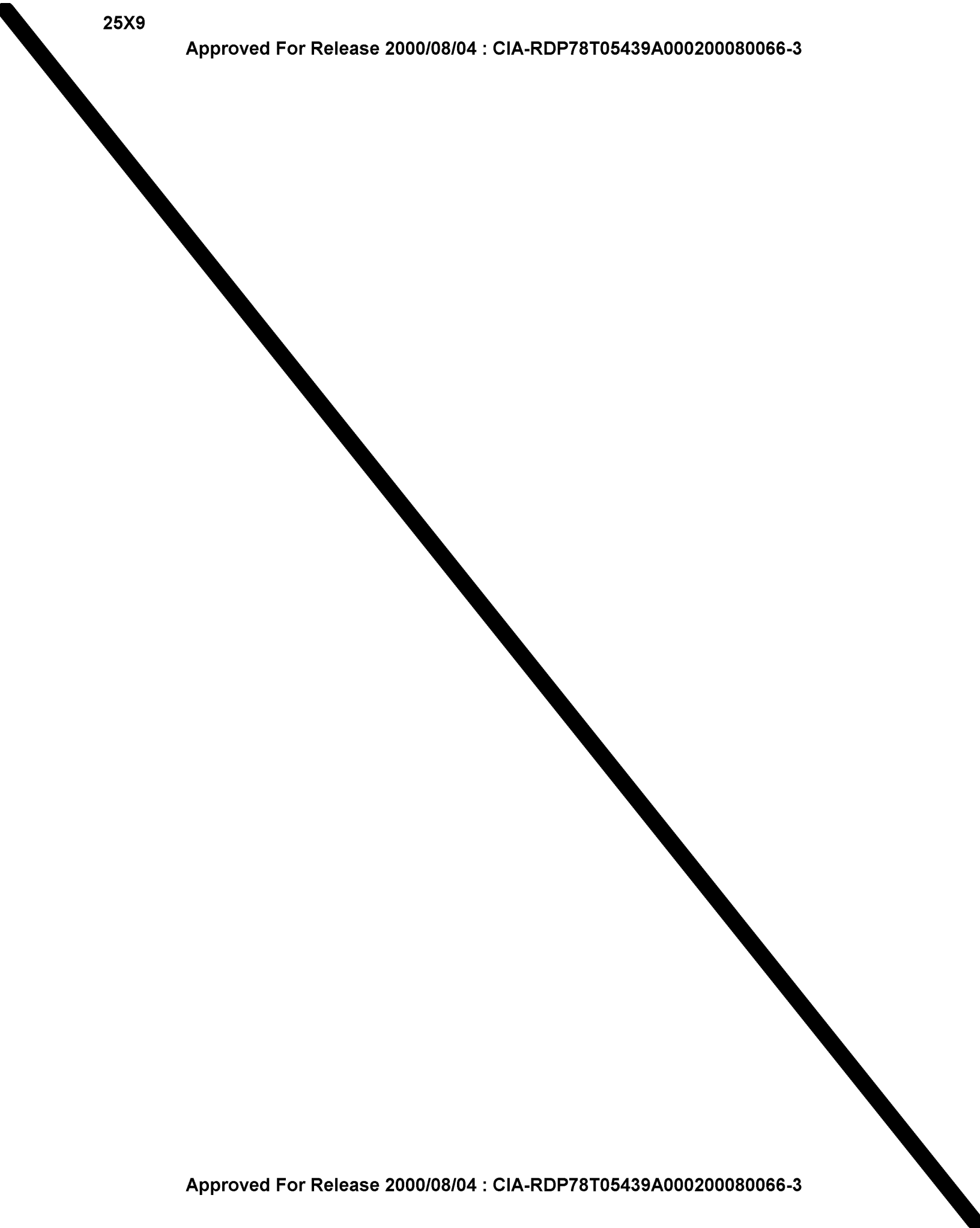
NEW-TYPE SAM SITES IN THE PLESETSK AREA

25X1D The two new-type SAM launch sites in the Plesetsk area were first identified on [redacted] photography. One is in the north sector, and the other is in the northeast sector (Figure 7). The north site is 950 feet north-northwest of SA-2 site B-36 and the northeast site, 2,300 feet south-southwest of SA-2 site B-06. The sites are generally circular and have six launch positions along the inside of and contiguous to the circular service road (Figure 8). The spacing between launch positions, except between the two nearest the entrance road, is the same. The north site is approximately 700 feet in diameter and the northeast, 585 feet. The launch positions and guidance areas vary in size and shape. Snow cover and the small scale of the photography preclude observation of other details.

NEW-TYPE SAM SITE IN THE PETROPAVLOVSK AREA

25X1D This new-type SAM site, initially identified on the [redacted] photography, is approximately 13 nm west of Petropavlovsk (Figure 9). It is generally circular and 655 feet in diameter. The guidance area is evident, but the circular road is barely visible and no launch positions can be identified (Figure 10). Trackage is apparent between the guidance area and the SA-2 site B-28, which is about 900 feet east-northeast. Snow precludes observations of other details. Snow has been removed from or packed down on the roads and revetments of the SA-2 site.



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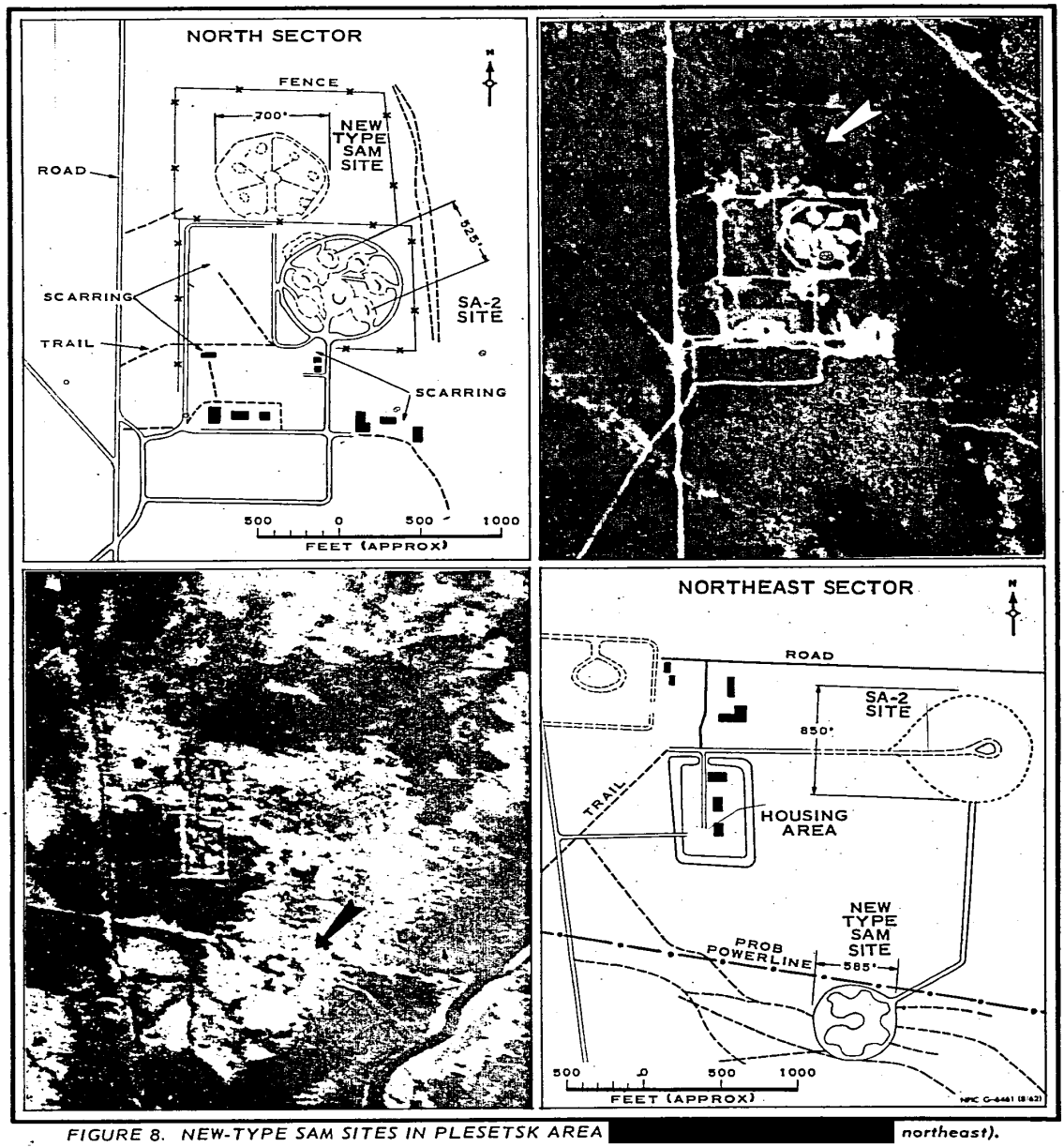

FIGURE 8. NEW-TYPE SAM SITES IN PLESETSK AREA [redacted] northeast).

25X1D

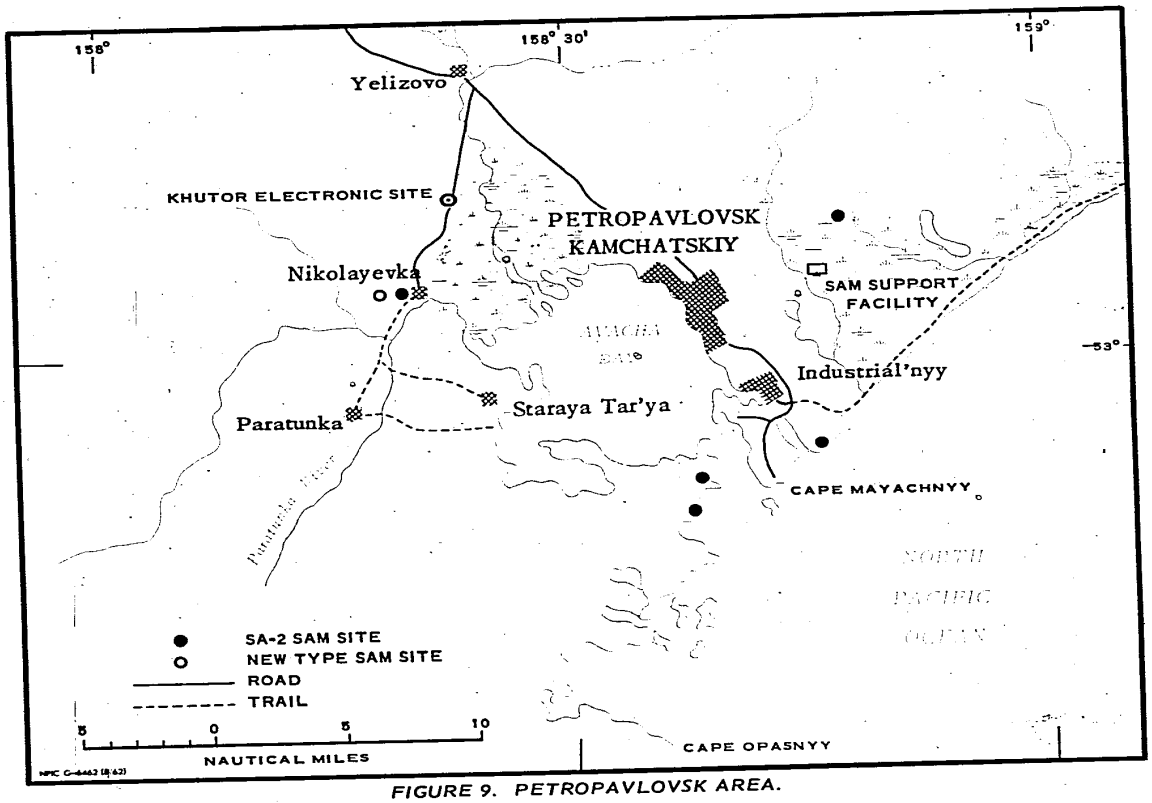

FIGURE 9. PETROPAVLOVSK AREA.

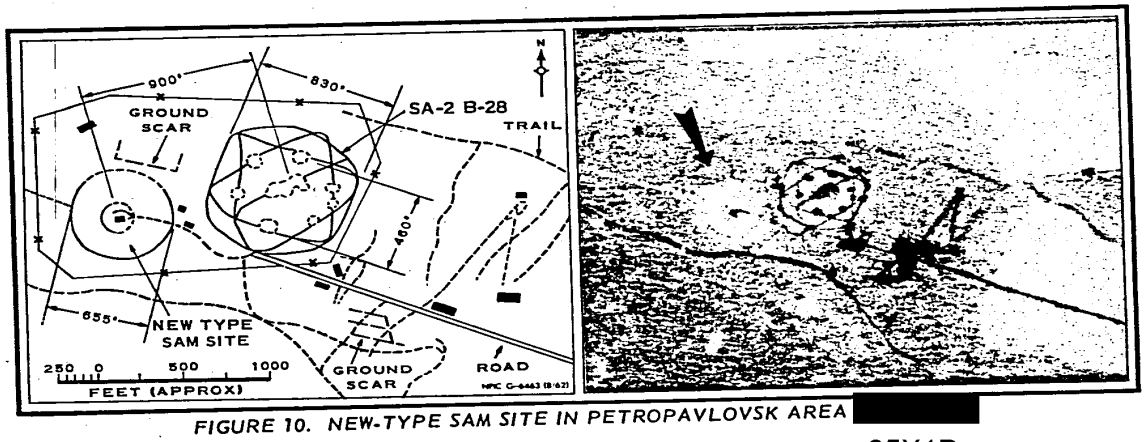

FIGURE 10. NEW-TYPE SAM SITE IN PETROPAVLOVSK AREA [redacted]

25X1D

NPIC/R-123/62

REFERENCES

PHOTOGRAPHY

Mission	Date	Pass	Camera	Frames	Classification
[redacted]					

25X1D

MAPS OR CHARTS

US Air Target Charts, Series 200, scale 1:200,000, SECRET, as follows (originators, sheets, editions, and dates as indicated).

KYMTC

SAC. Sheet 0235-18A, 1st ed, Apr 59

SAC. Sheet 0235-23A, 1st ed, Mar 59

TTMTC

ACIC. Sheet 0246-13AL, 3d ed, Oct 60

SAC. Sheet 0246-14AL, 1st ed, Oct 59

MAPS OR CHARTS (Continued)

Plesetsk Area

ACIC. Sheet 0102-9AL, 2d ed, Dec 61 (north sites)

USNHO. Sheet 0102-4AL, 2d ed, May 60 (northeast sites)

Petropavlovsk Area

SAC. Sheet 0194-17A, 2d ed, Jun 58

DOCUMENTS

1. CIA. PIC/JR-1008/61, Surface-to-Air Missile Facilities, Kapustin Yar/Vladimirovka Missile Test Center, USSR, Mar 61 (SECRET/Noforn [redacted] Downgrading Prohibited)

25X1C

REQUIREMENTS

CIA. OSI/R-40/62-KH/A (Revised) (partial answer)

CIA. OSI/R-40/62-KH Amendment

NPIC PROJECT

JN-57/62